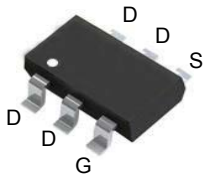
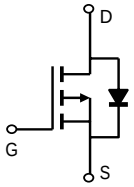
P-Channel Enhancement Mode MOSFET

Features

- Low Rdson for low conduction loss
- Reliable and Rugged
- ROHS Compliant & Halogen-Free

Pin Description

SOT23-6L	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	-30	V
$R_{DS(ON)-Typ}$	42	mΩ
I_D	-6	A

Absolute Maximum Ratings (T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter		P-Channel	Unit
V_{DSS}	Drain-Source Voltage		-30	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested		-24	A
I_D	Continuous Drain Current		-6	A
P_D	Maximum Power Dissipation		2.5	W
I_{AS}	Avalanche Current, Single pulse	L=0.1mH	-19	A
E_{AS}	Avalanche Energy, Single pulse	L=0.1mH	18	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	80	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in² FR-4 board with 1oz.

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Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-24V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	-1.0	---	-2.3	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-10V, I_D=-5A	---	42	52	mΩ
		V_{GS}=-4.5V, I_D=-3A	---	58	87	
R_G	Gate Resistance	V_{GS}=0V,V_{DS}=0V,F=1MHz	---	8	---	Ω
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-15V, Freq.=1MHz	---	840	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	110	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DD}=-15V, R_L=15Ω, I_{DS}=-1A, V_{GEN}=-10V, R_G=6Ω	---	10	---	nS
T_r	Turn-on Rise Time		---	11	---	
$T_{d(off)}$	Turn-off Delay Time		---	42	---	
T_f	Turn-off Fall Time		---	24	---	
Q_g	Total Gate Charge	V_{GS}=-15V,V_{DS}=-10V , I_D=-4A	---	18	---	nC
Q_{gs}	Gate-Source Charge		---	2.8	---	
Q_{gd}	Gate-Drain Charge		---	3.4	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	V_{GS}=0V , I_S=-2A , T_J=25℃	---	-0.7	-1.0	V
t_{rr}	Reverse Recovery Time	I_{SD}=-4A , di/dt=100A/μs，T_J=25℃	---	19	---	nS
Q_{rr}	Reverse Recovery Charge		---	9	---	nC

Note ④： Pulse test (pulse width 300us, duty cycle 2%).

Note ⑤：Guaranteed by design, not subject to production testing.

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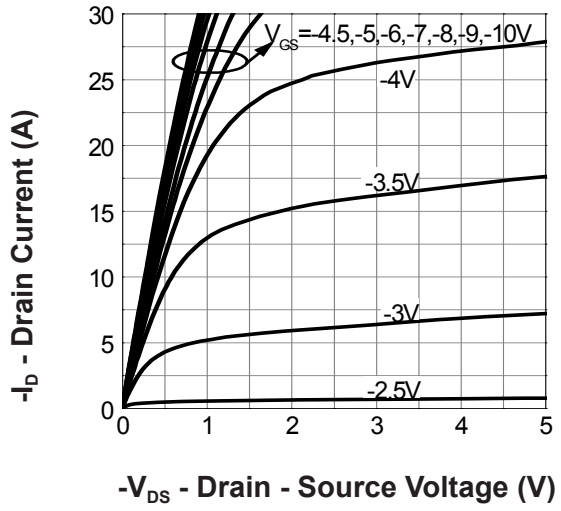
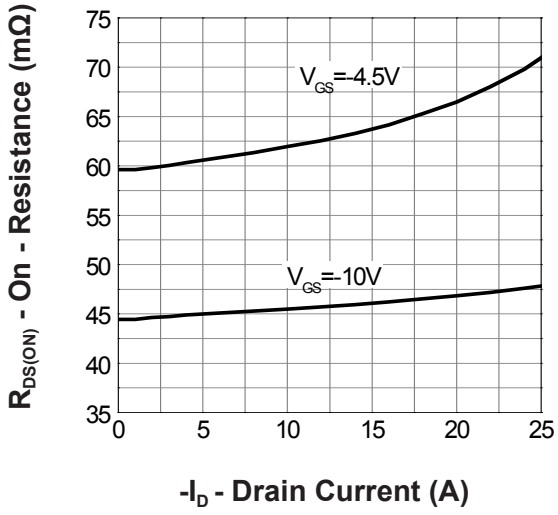
Typical Characteristics

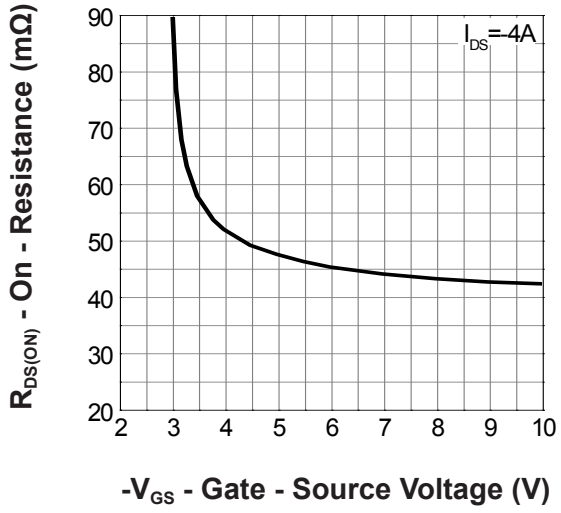
Output Characteristics



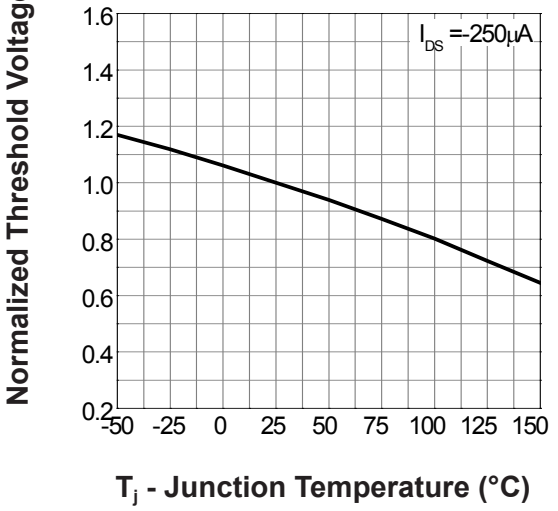
Drain-Source On Resistance



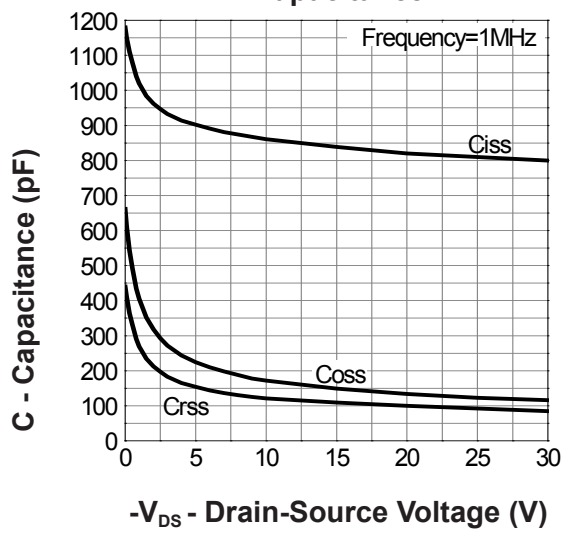
Gate-Source On Resistance



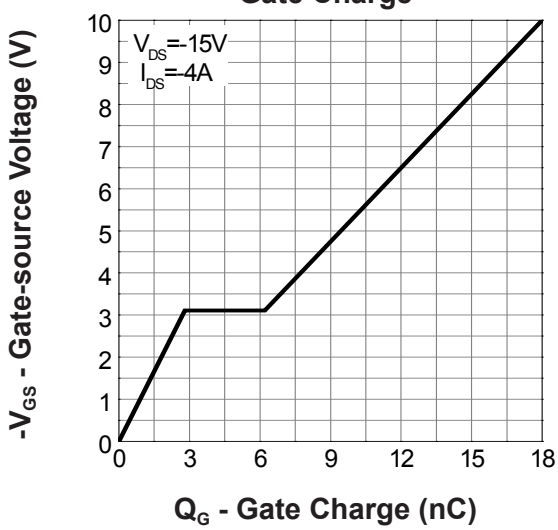
Gate Threshold Voltage



Capacitance



Gate Charge



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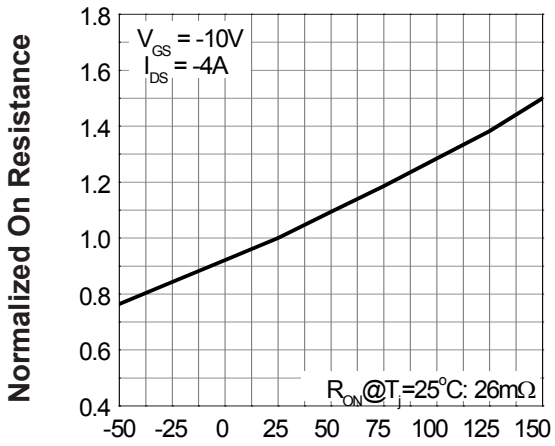
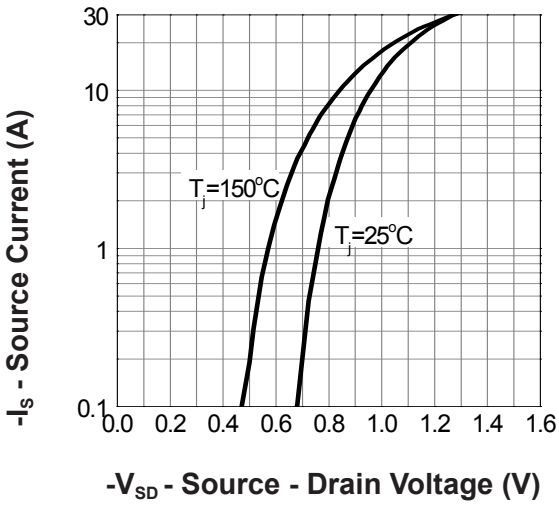
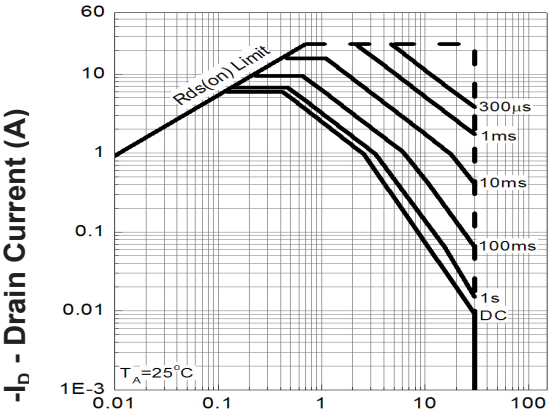
Drain-Source On Resistance



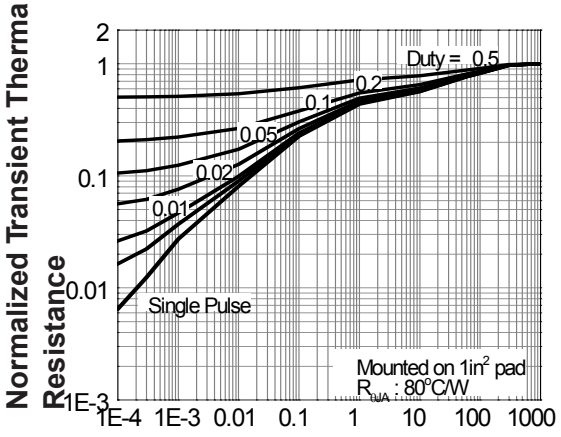
Source-Drain Diode Forward



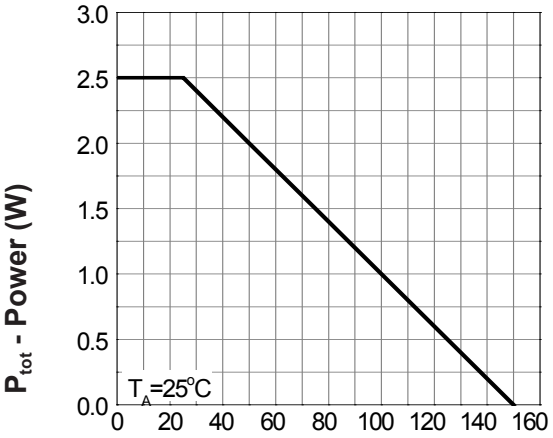
Safe Operation Area



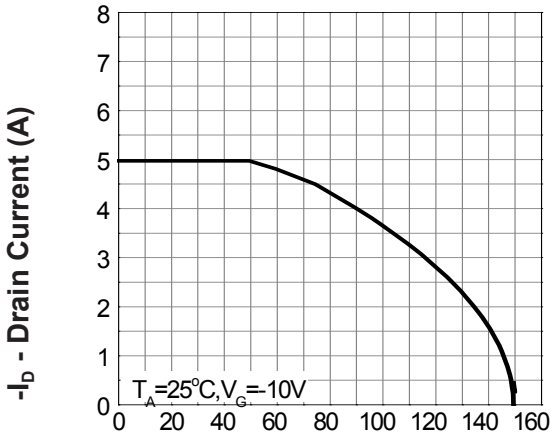
Thermal Transient Impedance



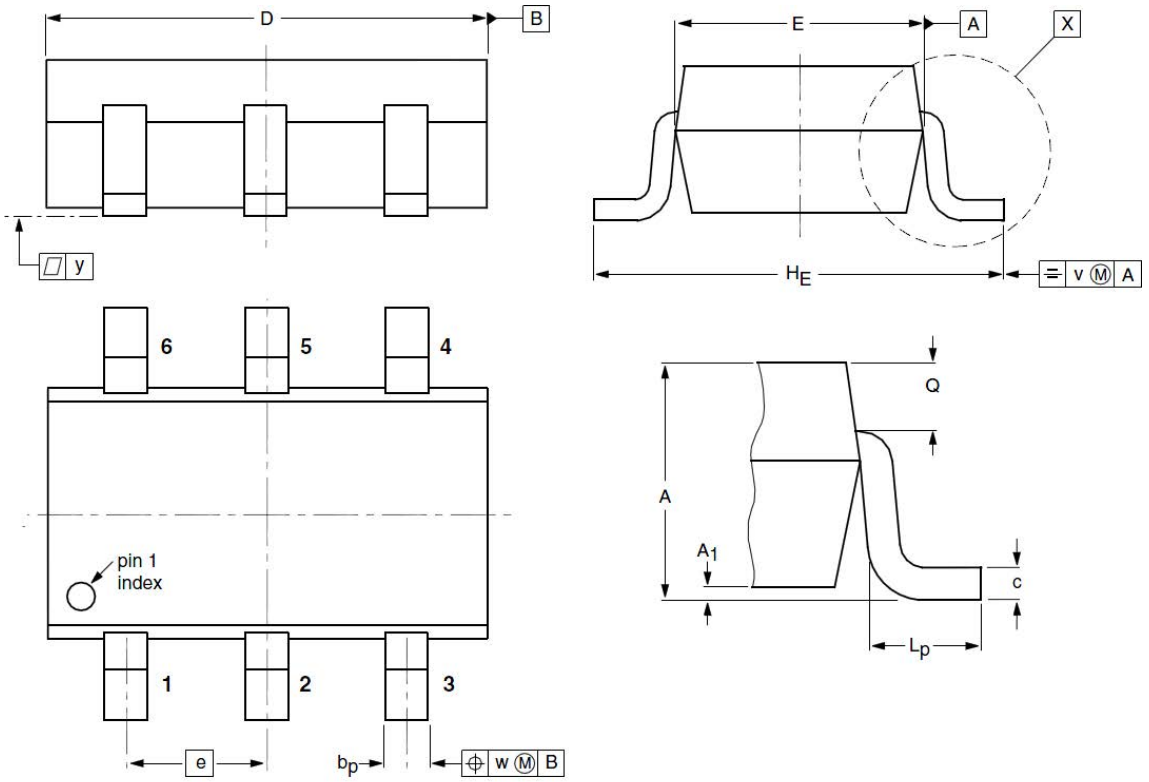
Power Dissipation



Drain Current



SOT23-6L Package Outline Dimensions



Symbol	Dimensions (unit:mm)			Symbol	Dimensions (unit:mm)		
	Min	Typ	Max		Min	Typ	Max
A	0.90	1.07	1.45	A_1	0.01	0.05	0.15
b_p	0.30	0.40	0.50	c	0.10	0.15	0.22
D	2.70	2.92	3.10	E	1.35	1.55	1.75
e	--	0.95	--	H_E	2.50	2.80	3.00
L_P	0.30	0.45	0.60	Q	0.23	0.29	0.33
v	--	0.20	--	W	--	0.20	--
y	--	0.10	--				